

K. T. H. D. L. B. A.

KNOW THE HAZARD . . .

DON'T LEARN BY ACCIDENT!



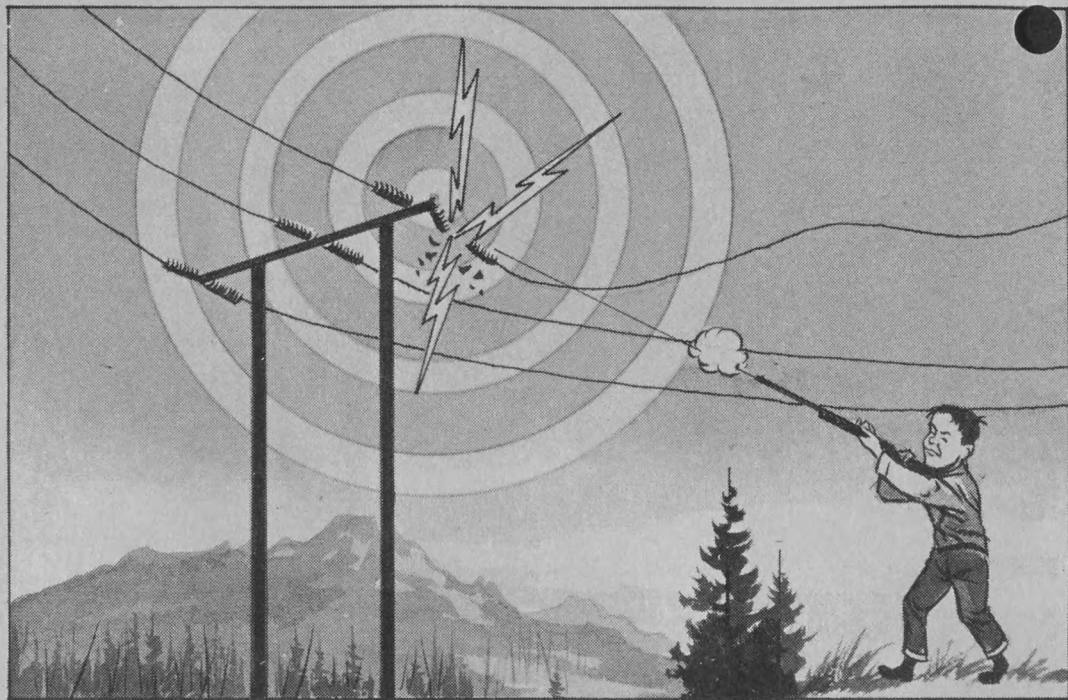
The

Shocking Truth



GALGARY POWER LTD.
SAFETY FOR THE SIXTYS
K. T. H. D. L. B. A.

**LOOK UP
and LIVE**



DON'T MAKE A POWERLINE YOUR TARGET!

Our records show damage by shooting caused
power failures to

1. Hospitals. (Iron lungs, operating room lights, etc.)
2. Fire (no water for pumping. Fire alarms out of service).
3. Households (without power for water pumping, heating, cooking, etc.)

and also creates the DANGER of
ELECTROCUTION from a FALLEN WIRE!

THE ACT OF SHOOTING INSULATORS
IS PUNISHABLE BY LAW



CALGARY POWER LTD.

Serving the Province of Alberta

PREFACE

Most of us, when we think of it at all, regard electricity as the safe, efficient, reliable, fast, and inexpensive servant it is. We all too often forget that in a careless or heedless moment electricity can turn, without warning, into a destructive, lethal enemy.

The purpose of this booklet is to point out some of the more common electrical hazards and proper steps to be taken in avoiding them.

Read the booklet through; have your friends and family read it. Then, keep it on hand, the information and first aid suggestions might be used in saving your life.

EFFECTS OF ELECTRICITY ON THE HUMAN SYSTEM

In order to understand the dangers of electricity, let's look first at what it can do and has done to the human body.

The severity of electric shock is determined by the amount of current (amperes) flowing through a victim. (Current flow is determined by voltage and resistance to it). Other factors which contribute to damage caused by electricity are: parts of the body involved, duration of current flow, and in the case of alternating current — frequency of the current.

Skin surface provides resistance to current flow. Callous or dry skin offers fairly high resistance. Resistance drops off sharply, however, when the skin is moist. Once the current passes the skin barrier, it flows more steadily through blood and body tissues.

Alternating current tends to contract a victim's muscles, often preventing him from letting go. Voltages as low as 25 or 30 volts have been known to cause this muscle contraction. Although the initial current flow at this voltage might not be fatal, it would be sufficient to burn the skin which would in turn eliminate skin resistance. It can be seen then that duration of electric contact plays an important role in determining effects of electrical shock.

Protection afforded by the skin decreases rapidly as voltage increases. High voltage alternating current has been known to cause such violent muscular spasm that the victim has been thrown clear.

Death or injury from electric shock may result from the following effects of current on the body:

—Contraction of chest muscles to a degree which causes suffocation from prolonged exposure.

—Temporary paralysis of the nerve centres controlling respiration which often continues long after the victim is removed from the circuit.

—Ventricular fibrillation. Circulation ceases and death results when vital organs are starved of oxygen. The heart, when in a fibrillating state, apparently cannot recover spontaneously.

—Suspension of heart action by muscular contraction. The heart sometimes resumes normal rhythm when the victim is freed from the circuit.

—Hemorrhage and destruction of body tissues results from heat due to heavy current flow.

The longer current flows through the body, the more serious the result. If the victim is to be revived, only very short exposure can be tolerated.

In the majority of electrical accidents, current flows from hand to hand or hands to feet. Such a path involves both heart and lungs, and the results are likely to be serious.

Burns caused by electrical flashes are usually deep and slow to heal. Such burns often involve large areas of the body.

REMOVING A VICTIM FROM A CIRCUIT

Electrical accidents call for prompt, intelligent action. Promptness if the victim is to be saved, and intelligence if two casualties rather than one are to be avoided.

LOW VOLTAGE (0 to 240 Volts) (Household Use)

Switch off the current if possible and time permits. If the switch cannot be located immediately and the supply is through a flexible cord or cable, the current may be shut off by removing the plug or even breaking the cable or wrenching it free. Never attempt to shut off current by cutting the cord with knife or scissors.

If the current cannot be shut off, the greatest care is necessary in removing the victim. Household rubber gloves, water hose, rubber or plastic (if there is no water in them), a dry unpainted stick or a clean dry rope can be used to free the victim.

HIGH VOLTAGE — 240 VOLTS AND UP

(Industrial Machines and Power Lines)

Do not touch any person or equipment in contact with a wire.

Use a dry unpainted pole, clean dry rope, dry rubber or plastic water hose to separate the victim from the contact.

Keep as far away as possible.

Do not touch the victim until he is free.

TREATMENT

1. When cleared from contact, if the victim is unconscious and not breathing, begin artificial respiration immediately.
SECONDS COUNT.

2. Send for a Doctor.

3. Treat for shock.

- (a) Reassure the casualty.
- (b) Turn the victim on his back with head to one side.
- (c) Loosen clothing about the neck, chest, and waist.
- (d) Keep patient warm.
- (e) If he complains of thirst, he may be given sips of water, tea, coffee, or other liquids; but not alcohol.
- (f) Do not apply heat.

4. Treat burns.

- (a) Avoid handling the affected area more than necessary.
- (b) Do not apply lotions of any kind.
- (c) Do not remove burned clothing nor break blisters.
- (d) Cover the area including the burned clothing with a prepared dry sterile dressing if possible.
- (e) Bandage firmly except when blisters are present or suspected in which case bandage loosely.
- (f) Immobilize the affected area by suitable means.

5. Transfer victim to hospital.

HEART-LUNG

"Head Tilt Method"

Mouth-to-Mouth Resuscitation

1. Clear Air Passages

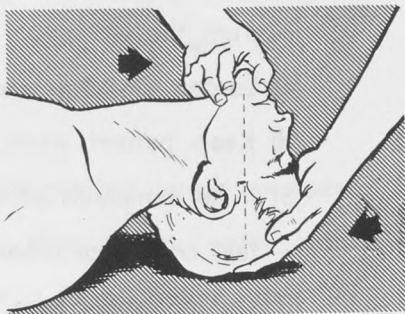
Lift Neck

In an unconscious person, relaxation of the jaw usually results in blockage of the air passages by allowing the tongue to drop backward into the pharynx. When the neck is lifted, the head drops backward into extension. This alone will sometimes clear the air passages and allow a victim to resume spontaneous breathing.



Extend Head

The head should then be tilted into maximum extension. One hand pushes the jaw upward from below, the other hand pushes the crown of the head under from above. When the chin is pointing almost straight upward, the jaw and tongue are drawn forward and the air passages are cleared.



2. Inflate Lungs

Open your mouth widely. Place i. over the mouth OR nose of an adult or large child (the mouth AND nose of a small child), make a tight seal and blow into the air passages until you see the chest rise and feel the lungs expand. Adults require a deep breath from the rescuer; infants and small children only need small puffs of air. Your cheek rests on the victim's mouth and prevents air leakage during mouth to nose breathing. The victim's mouth may be kept open for mouth-to-mouth breathing by drawing down his lower lip, while air leakage from his nose is prevented by your cheek — or you may pinch off the nostrils with the other hand.



Now remove your mouth and take your next breath as you hear and feel him exhale. Reinflate the lungs 10 to 12 times per minute for an adult, at least 20 times per minute for a child.

**Adults and
large children**

**seal lips around
Nose OR Mouth**



Small children

**seal lips around
Nose AND Mouth**



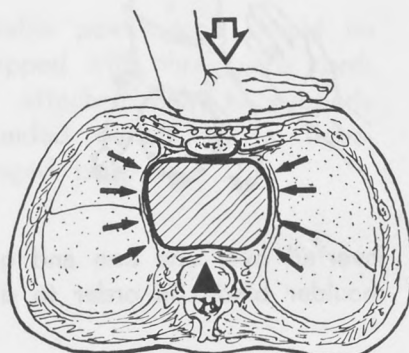
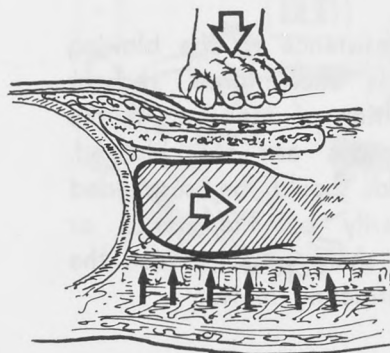
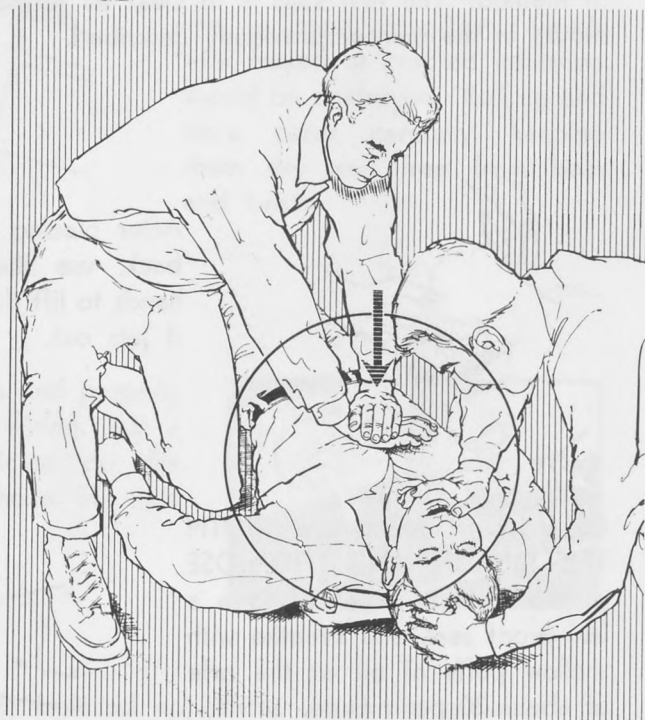
RESUSCITATION

"Closed Chest Method"

External Cardiac Resuscitation

3. Compress Heart

Be sure the victim is resting on a firm surface. Place the heel of one hand in the center of the chest over the lower portion of the breast-bone and place the other hand on top of it. Rock forward and use the weight of your body to exert pressure vertically downward. This moves the breast-bone an inch or two and compresses the heart between it and the spinal column. The pericardial sac which surrounds the heart is non-elastic so this compression propels blood out of the heart into the lungs and the body. When the pressure is released the chest re-expands and the heart refills with blood. The cycle is repeated 60 to 80 times per minute for adults, 80 to 100 times per minute for children.



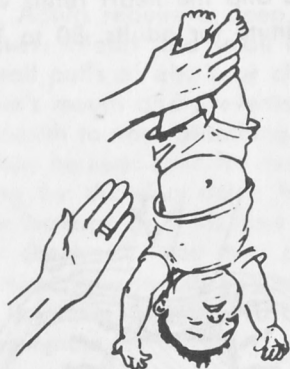
TECHNIQUES FOR INFANTS AND SMALL CHILDREN

Mouth-to-Mouth resuscitation for infants and small children follows much the same general technique, but with a few exceptions in method. The first step is to clear all foreign matter from the mouth in the manner previously described.



After placing the child upon his back, use the fingers of both hands to lift the lower jaw so that it juts out.

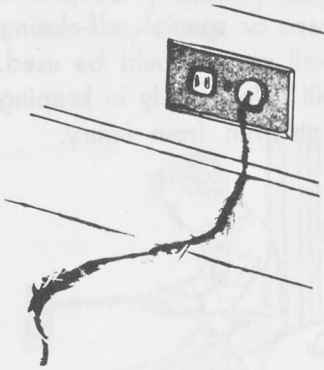
Place your mouth over BOTH THE MOUTH AND THE NOSE of the child in order to form a leak-proof seal, and breathe with shallow puffs of air at the rate of about 20 per minute.



When resistance to the blowing efforts is encountered, recheck the position of the jaw. If the air passages are still blocked, the child should be suspended momentarily by the ankles or

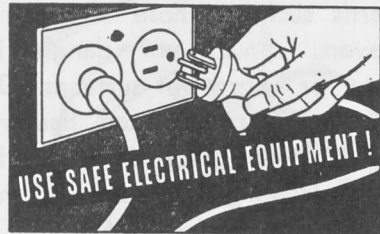
inverted over one arm and given a few sharp pats between the shoulder blades in order to dislodge obstructing matter.

LOW VOLTAGE HAZARDS



Use only electrical cords which are in good condition. Cords with frayed or cracked insulation should be destroyed. Roll up and store cords carefully, keeping them dry and free from kinks and twists.

Use polarized plugs and properly installed grounded wiring. Let a professional electrician do the installation. It's cheap life and fire insurance.



All permanently installed appliances should be grounded to a proper ground. This is especially important in the case of washing machines, dryers, electric ironers, and other equipment that may be used in the dampness of a basement.

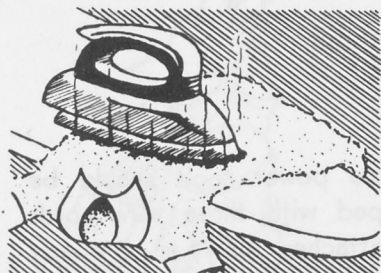
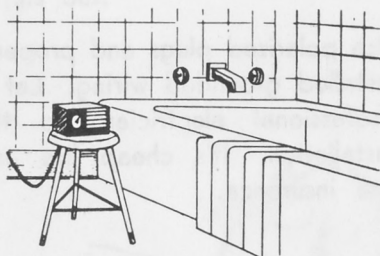


Portable power tools should be equipped with three wire cords and attached only to properly grounded outlets by a three-pronged plug.



Unused electrical wall outlets should be covered with plastic safety caps or special self-closing safety wall plugs should be used. These will help greatly in keeping curious children from injury.

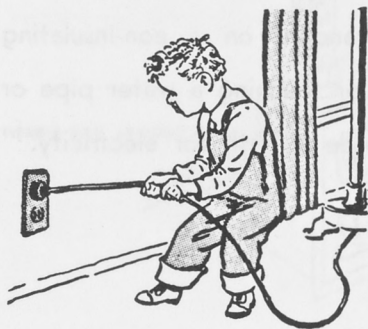
Electrical equipment should not be used in damp or wet places. Cords such as those of electric shavers, should not dangle in water or lie on wet surfaces. Do not use electric space heaters, radios or appliances in the bathroom, laundry room or near the kitchen sink.



Disconnect such appliances as irons and toasters as soon as you have finished using them.

If you have defective appliances in your home, have them repaired immediately — it could mean someone's life.

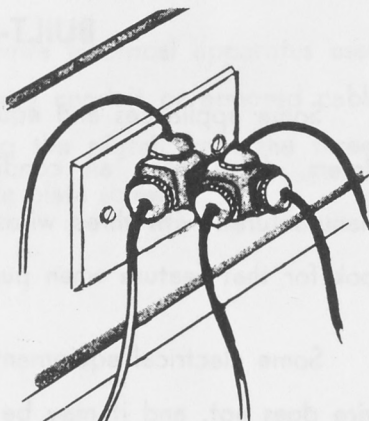
Never place exposed bulbs too near combustible material or a fire may result.



Always unplug lamps or appliances by grasping the plug rather than pulling on the cord.

Overfusing and overloading circuits presents a definite fire hazard. If a fuse blows, relieve the overload and replace the fuse with the proper size.

Overloading is often caused by too many appliances plugged into the same outlet or circuit.



GROUNDING

Why should appliances be grounded? An electric current has a natural compulsion to flow to the ground. In doing so, electricity may pass through your body, provided you are in contact with a defective electrical apparatus and standing on a non-insulating surface such as earth, cement, metal, or touching a water pipe or other ground material which will provide a path for electricity.

BUILT-IN SAFETY

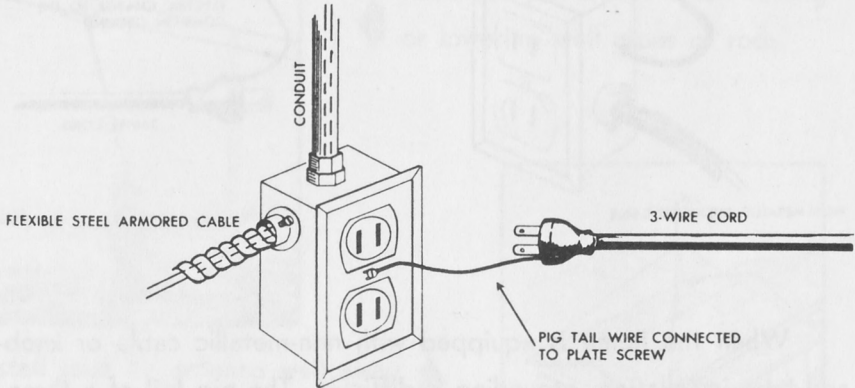
Some appliances and equipment, especially washing machines, dryers, dishwashers, air conditioners, and large power tools are manufactured with three wires reducing the shock hazard. Always look for that feature when purchasing any appliance.

Some electrical equipment which should have the third ground wire does not, and it may be necessary for you to install or have this wire installed.

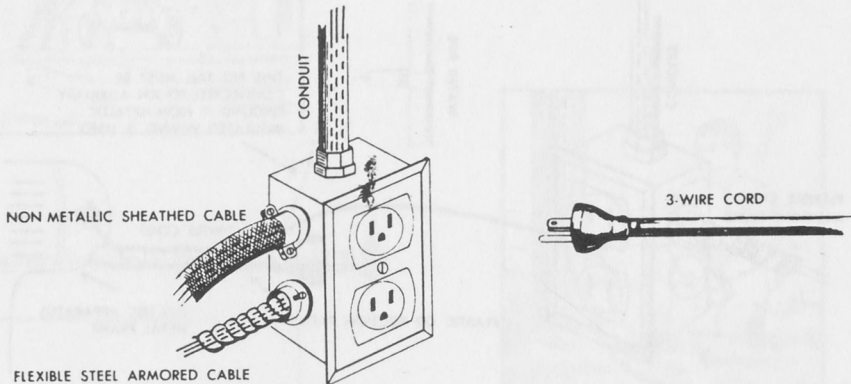
How you ground your equipment depends upon the type of wiring in your house. There are basically four types: metal conduit, armored cable, non-metallic insulated cable, and knob-and-tube as shown in the illustrations.

If you can't determine your type of wiring, have an electrician do so. Then proceed with grounding the equipment as shown in one of the illustrations. The peace of mind is well worth the effort and small amount of time it takes.

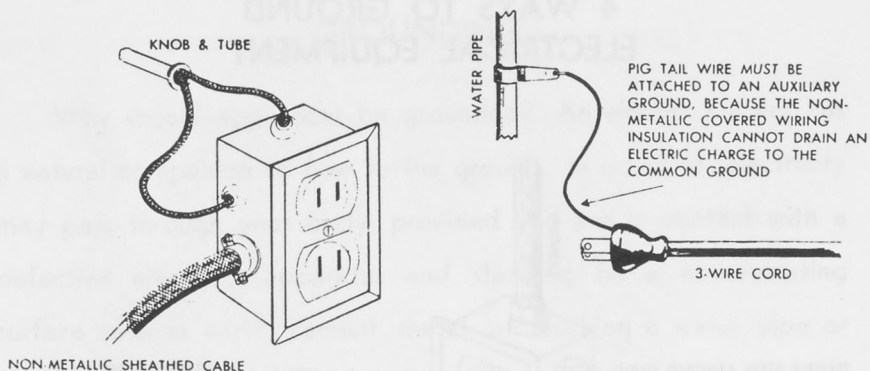
4 WAYS TO GROUND ELECTRICAL EQUIPMENT



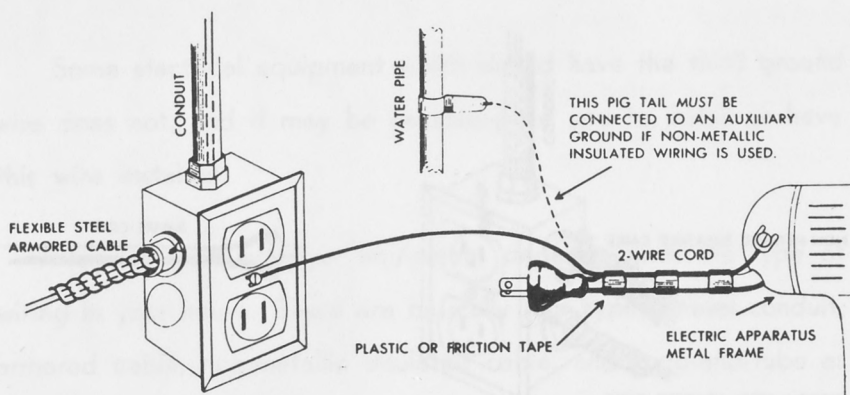
You can ground a three-wire electrical apparatus used with a conventional two-wire conduit or armored cable wiring system by plugging the pigtail from the three-wire plug to the receptacle plate screw.



This is the ideal method of home wiring. With three-wire installation throughout the home, you are protected from shock. The third wire drains all potential electric shocks to a common ground.

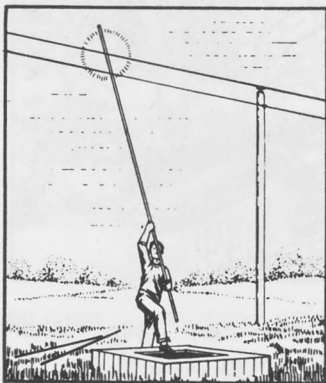


When the home is equipped with non-metallic cable or knob-and-tube installation, grounding is difficult. The pig tail of a three-wire plug or adaptor must be connected to an auxiliary ground — such as metal framework of buildings or water well casings which lead to the earth. NEVER USE GAS PIPES. When no such ground is available, install ground rods, plates, strips or other units meeting National Electrical Code requirements.



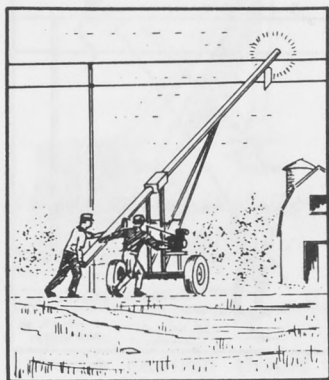
To fit a conventional two-wire apparatus with a third ground wire, connect a 14 or 16 gauge flexible copper wire to frame of the apparatus and dress wire along power cord to plug. Follow procedures indicated in the other illustrations, according to type of wiring in your home.

HIGH VOLTAGE HAZARDS



◀ Look for powerlines when raising or lowering well pipes or rods.

Install your TV antenna well away ▶



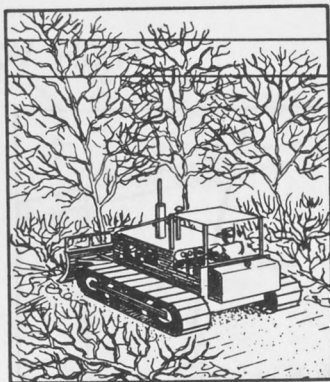
◀ When moving tall equipment under powerlines, make sure there is at least six feet clearance.

Never touch a fallen wire. ▶

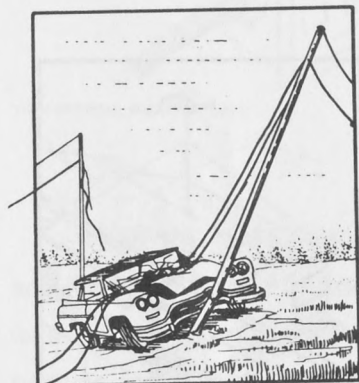


◀ Contact your local power company when moving buildings under powerlines.

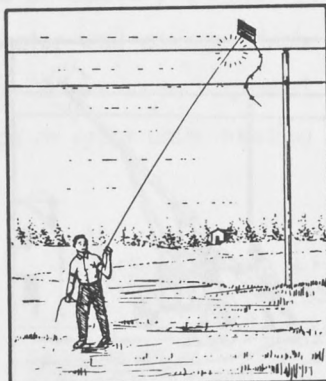
Don't attempt to fell or trim trees near a powerline. Call your electric serviceman, who will assist you.



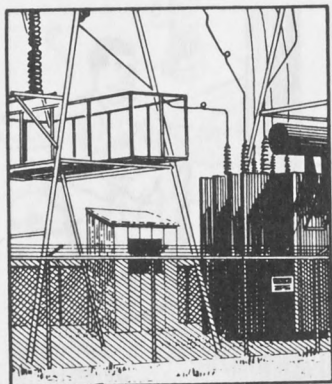
Stay in the car, keep other people away. Have someone go for help.



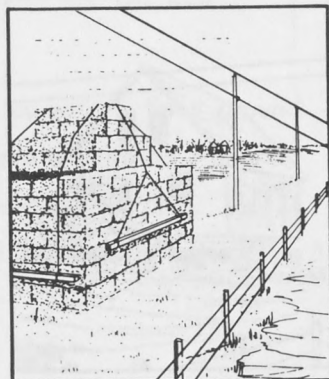
Don't fly kites or model planes in the vicinity of powerlines. Strings or control wires can be electrical conductors.

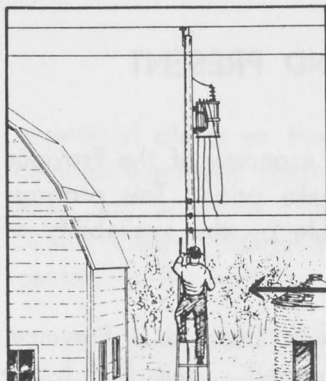


Only authorized persons are allowed in substations.



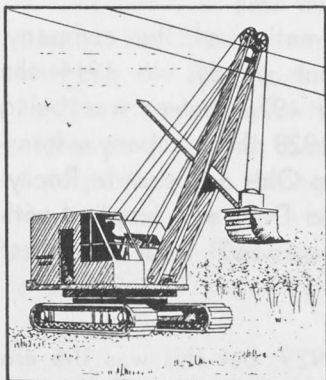
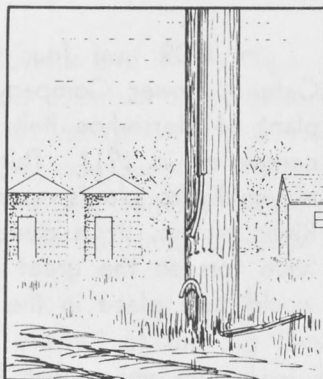
Don't build haystacks near powerlines. (Keep at a distance of at least 50 feet).





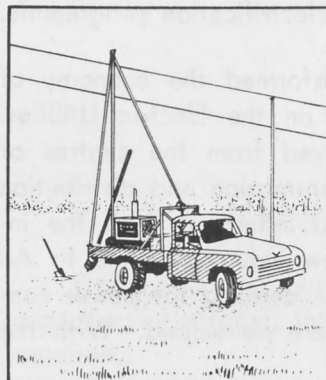
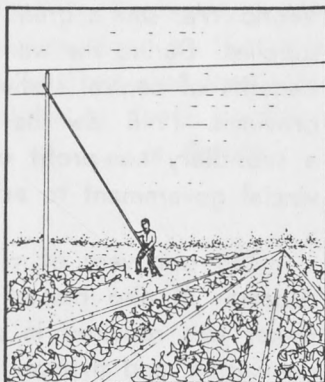
NO
CLIMBING

If the ground or any other wire on your transformer pole is accidentally broken, report it to your electric serviceman **immediately**.



Crane contacts kill. Keep your machine at least 10 feet from powerlines. If necessary to work near or under powerlines, contact your electric serviceman before you start.

Extreme caution should be used when relocating irrigation pipes, if there are powerlines in the vicinity.



Establish the position of overhead powerlines **before** well drilling operation is begun.

THE COMPANY: PAST AND PRESENT

The story of the development of the economy of the Province of Alberta is one in which we can all take pride. This progress has, in large measure, been made possible by the availability of electrical energy.

In 1909, just four years after Alberta became a Province, Calgary Power Company Limited was formed. Their first hydro plant at Horseshoe Falls — about 45 miles west of Calgary was completed in 1911. This plant is still in operation as one of the eleven hydro plants operated by Calgary Power Ltd., on the Bow River system. It is doubtful if in those early days anyone could have foreseen the great growth of the company's operations that would take place in the ensuing fifty years.

In the years that followed the formation of the company, progress and development were slow but steady. In 1914 the Kananaskis plant was completed, and by 1926, power was being supplied to towns south of Calgary. In 1928 the company's transmission system was extended northwards to Olds and east to Rockyford and Bassano. Part of the city of Red Deer was supplied with bulk power in 1930 when a 132 KV line was built from the Ghost plant north to the Edmonton area.

The Ghost dam was completed in 1929, but this was the era of the depression, and further development was slow. The Second World War saw a great and sudden demand for additional power supplies. During the war years a start was also made to bring the benefits of central station power to the rural communities of the province. 1948 saw the formation of Farm Electric Services Ltd., a subsidiary non-profit organization working closely with the Provincial government to extend the Rural Electrification programme.

The discovery of oil at Leduc transformed the economy of Alberta. It also placed extra demands on the Electric Utilities. Power was required in places far removed from the centres of population, and thousands of miles of transmission and distribution lines have been built to serve this vital industry. With the increased prosperity from oil revenues, new industries came to Alberta, oil refineries were built, and as the demand for power continued to grow additional power sites were developed. With the

growth of plants on the Bow River, it became necessary to install complex electronic control equipment to ensure the maximum efficiency and economy. Today, here in the Province of Alberta at Seebe, Calgary Power operates one of the most advanced Control centres in the world.

The industrial development of the province and its accompanying electrical requirement necessitated the construction of a large thermal or steam plant at Wabamun, the first generating unit of which started operating in 1956. This plant now supplies the base load requirements for the Calgary Power system. Initially the plant was operated by burning natural gas, but the third and subsequent units will burn coal.

In 1961, a new hydro project was started at the Big Bend site on the Brazeau river. This project is a co-operative venture between the Provincial Government and Calgary Power Ltd. Due to the industrial growth in the Edmonton area, the North Saskatchewan River has become polluted especially in the winter low flow period. By storing water during the spring run-off, and releasing it during the winter, the pollution situation has been largely relieved. The future power potential of this site will add to the availability of electrical energy for new industry and homes in the future.

Calgary Power Ltd., like Canadian Utilities, Limited and Northland Utilities Limited is an investor owned utility. The money needed to carry out these developments has been provided by the shareholders in the company. We are proud to show what free enterprise has done in the past and will continue to do in the future to help you, the people of Alberta to . . . Live Better . . . Electrically.



"A FRIENDLY REMINDER AGAIN"

Please notify your nearest Calgary Power representative regarding electrical interruptions, accidents, or other services required.

"SERVICE IS OUR MOTTO"

YOUR



Is in your hands



CALGARY POWER LTD.

HEAD OFFICE: 140 First Ave. S.W., Calgary, Alta.

FILMS

The Public Safety Department of Calgary Power Ltd., operates as a free public service. Films on Electrical Safety, and artificial respiration are available free on request.

Should you require additional copies of this booklet or wish to borrow one of the safety films, please write or phone:—

**THE PUBLIC SAFETY DEPARTMENT
CALGARY POWER LTD.
P.O. Box 190
Calgary, Alberta**

**Telephone
AM 6-4631 Loc. 386**

EMERGENCY TELEPHONE NUMBERS

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Phone	TAXI
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Phone	FIRE DEPT.
Phone	GAS COMPANY
Phone	ELECTRIC UTILITY

This book is produced in the public interest

by

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Calgary Power Ltd.,

140 - 1st Avenue S.W., Calgary